

I CLAIM:

1. A friction material comprising a fibrous base material impregnated with at least one curable resin, the fibrous base material comprising partially carbonized carbon fibers.

2. The friction material of claim 1, wherein the fibrous base material comprises about 5% to about 35%, by weight, of partially carbonized carbon fibers, based on the weight of the fibrous base material.

3. The friction material of claim 1, wherein the fibrous base material comprises about 10% to about 30%, by weight, of partially carbonized carbon fibers, based on the weight of the fibrous base material.

4. The friction material of claim 1, wherein the partially carbonized carbon fibers have an average length that ranges from about 0.5 to about 6 mm and an average diameter that ranges in size from about 1 to about 15 μ m.

5. The friction material of claim 4, wherein the fibrous base material further includes aramid fibers.

6. A friction material comprising a fibrous base material impregnated with at least one curable resin, the fibrous base material comprising a porous primary layer and one secondary layer, the secondary layer comprising partially carbonized carbon fibers on at least one surface of the primary layer, the partially carbonized carbon fibers comprising 3% to about 90% of the surface area of the primary layer, wherein the fibrous base material comprises a plurality of less fibrillated aramid fibers having a

freeness of at least about 300 on the Canadian Standard Freeness (CSF) index, and optionally one or more of the following: cotton fibers, carbon fibers, carbon particles, and, at least one filler material.

7. The friction material of claim 6, wherein the less fibrillated aramid fibers have a freeness of about 430 to about 650 on the Canadian Standard Freeness index.

8. The friction material of claim 6, wherein the aramid fibers have average fiber lengths in the range of about 0.5 to about 10 mm.

9. The friction material of claim 6, wherein the filler comprises diatomaceous earth.

10. The friction material of claim 1, wherein the fibrous base material defines pore diameters ranging in mean average size from about 2.0 to about 25 microns.

11. The friction material of claim 1, wherein the primary layer has readily available air voids of at least about 50%.

12. The friction material of claim 6, wherein the fibrous base layer comprises about 10 to about 50%, by weight, less fibrillated aramid fiber; about 10 to about 35%, by weight, carbon particles; about 5 to about 20%, by weight, cotton fibers; about 2 to about 15%, by weight, carbon fibers; and, about 10 to about 35%, by weight, filler material.

13. The friction material of claim 12, comprising in percent, by weight, about 38 to 40% less fibrillated aramid fibers, about 13 to about

15% carbon particles; about 10 to about 12% cotton fibers; about 4-6% carbon fibers; and about 28 to about 30% filler material.

14. The friction material of claim 1, impregnated with a phenolic resin or a modified phenolic resin.

15. The friction material of claim 14, wherein the friction material comprises approximately 25 to about 60% resin, by weight.

16. The friction material of claim 1, impregnated with a mixture of a phenolic resin and a silicone resin wherein the amount of silicone resin in the mixture ranges from approximately 5 to approximately 80%, by weight, based on the weight of the mixture.

17. The friction material of claim 16, wherein the phenolic resin is present in a solvent material and the silicone resin is present in a solvent material which is compatible with the solvent material of the phenolic resin.

18. The friction material of claim 16, wherein the amount of silicone resin present in the silicone-phenolic resin mixture ranges from about 20 to about 25%, by weight, based on the weight of the mixture.

19. The friction material of claim 16, wherein the amount of silicone resin present in the silicone phenolic resin mixture ranges from about 15 to about 25%, by weight, based on the weight of the mixture.

20. The friction material of claim 14, wherein the modified phenolic resin comprises an epoxy phenolic resin.

21. The friction material of claim 20, wherein the amount of epoxy resin present in the epoxy phenolic resin ranges from about 5 to about 25%, by weight, based on the weight of the epoxy phenolic resin.

22. The friction material of claim 20, wherein the amount of epoxy resin present in the epoxy phenolic resin ranges from about 10 to about 15%, by weight, based on the weight of the epoxy phenolic resin.

23. A process for producing a friction material comprising the steps of:

forming a fibrous base material comprising aramid fibers,

coating about 3% to about 90% of at least one surface of the porous fibrous base material with partially carbonized carbon fibers, the partially carbonized carbon fibers being present at about 10 to about 30%, by weight, based on the weight of the fibrous base material,

impregnating the coated fibrous base material with a phenolic resin, or phenolic-based resin mixture, and

thereafter, curing the impregnated fibrous base material at a predetermined temperature for a predetermined period of time.

24. The process of claim 23, in which the aramid fibers are mixed with carbon particles, cotton fibers, carbon fibers and at least one filler material to form the fibrous base material.

25. The process of claim 23, in which the wherein the partially carbonized carbon fibers have an average length that ranges from about 0.5 to about 6 mm and an average diameter that ranges in size from about 1 to about 15 μm .

26. A process for producing a friction material comprising of the steps of:

coating about 3% to about 90% of at least one surface of a porous fibrous base material with partially carbonized carbon fibers having an average length that ranges from about 0.5 to about 6 mm and an average diameter that ranges in size from about 1 to about 15 μm ., partially carbonized carbon fibers being present at about 10 to about 30%, by weight, based on the weight of the fibrous base material,

impregnating the coated fibrous base material with a phenolic resin, or phenolic-based resin mixture, and

thereafter, curing the impregnated fibrous base material at a predetermined temperature for a predetermined period of time.

27. The process of claim 26, wherein the fibrous base material comprises a plurality of less fibrillated aramid fibers having a freeness of at least about 300 on the Canadian Standard Freeness (CSF) index, and optionally one or more of the following: cotton fibers, carbon fibers, carbon particles, and, at least one filler material.

28. The process of claim 27, in which the fibrous base material comprises a plurality of less fibrillated aramid fibers having a freeness of at least about 430 to about 650 on the Canadian Standard Freeness (CSF) index.